DOCUMENT RESUME

ED 219 286 SE 038 798

AUTHOR Green, Dan; And Others
TITLE The School Ground Classroom: A Curriculum to Teach K-6 Subjects Outdoors. First Edition.
INSTITUTION Environmental Education Association of Oregon, Portland.
PUB DATE 80
NOTE 66p.
AVAILABLE FROM Environmental Education Association of Oregon, P.O. Box 40047, Portland, OR 97240.

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Art Activities; Elementary Education; Elementary School Mathematics; Elementary School Science; *Environmental Education; Health Activities; *Interdisciplinary Approach; Language Arts; *Learning Activities; Music Activities; *Outdoor Activities; *Outdoor Education; School Location; Science Activities; Social Studies; Teaching Guides; Teaching Methods

ABSTRACT

Suggesting that outdoor activities can be positive learning experiences, lesson plans and activities were designed to demonstrate that the outdoors is an interdisciplinary classroom, to be used on virtually any school site, and to teach subject matter taught as part of the standard curriculum. Seventeen interdisciplinary ideas with correlated activities for language arts, social studies, science, health, mathematics, art, and music are provided. Subjects of these ideas focus on insects, shadows, ball park, curbs, birds, parking lot, asphalt, leaves, flagpole, playground, open area, wind vanes, natural area, weedy area, grassy area, telephone poll, and trees. Twenty-eight lesson plans are also provided. Each lesson plan includes title, subject area, grade level, goals, skills fostered, purpose, performance indicators, materials/resources, instructional strategies, and references. Titles include the five senses, differences/similarities, trees, outdoor sets and counting, cloud shapes, litter critters, sunlight/shadows, outdoor shapes, how does it feel, mapping, cracks, hop/skip/jump, riddle-diddle, vehicle adventure, what happens to leaves, cinquain, litter recycling, dichotomous key, fraction fun hunt, echoisms, natural resources, air mail balloons, pacing game, verse-three ways, temperature of school wall, and measuring a shadow. (JN)

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THE SCHOOL GROUND CLASSROOM

A curriculum to teach K-6 subjects outdoors

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Published by the:

Environmental Education Association of Oregon
P. O. Box 40047
Portland, Oregon 97240

FIRST EDITION

1980

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TABLE OF CONTENTS

			Page
Introduction			1
Chapter One - Interdisciplinary Ideas			5
Insects			6
Shadows			7
Ball Park			8
Curbs			9
Birds			10
Parking Lot			11
Asphalt			12
Leaves			13
Flagpole			14
Playground			15
Open Area			16
Anywhere			17
Natural Area			18
Weedy Area			19
Grassy Area			20
Telephone Pole			21
Trees			22
Chapter Two - Lesson Plans			23
The Five Senses	Language Arts	K	24
Differences and Similarities	Social Studies	K	25
Trees	Science	K	26
Outdoor Sets and Counting	Math	K	28
Cloud Shapes	Language Arts	1st	29
Litter Critters	Social Studies	1st	30
Sunlight and Shadows	Science	1st	31
Outdoor Shapes	Math	1st	32
How Does It Feel?	Language Arts	2nd	33
Mapping	Social Science	2nd	34
Cracks	Science	2nd	35
Hop, Skip and Jump	Math	2nd	37
Riddle-Diddle	Language Arts	3rd	39
Vehicle Adventure	Social Studies	3rd	41
What Happens to the Leaves?	Science	3rd	43
Measurement	Math	3rd	44
Cinquain	Language Arts	4th	46
Litter Recycling	Social Studies	4th	47
Dichotomous Key	Science	4th	48
Fraction Fun Hunt	Math	4th	50
Echoisms	Language Arts	5th	51
Use of Natural Resources	Social Studies	5th	52
Air Mail Balloons	Science	5th	53
Pacing Game	Math	5th	54
Verse-Three Ways	Language Arts	6th	55
Mapping Your School Neighborhood	Social Studies	6th	56
Temperature of School Wall	Science	6th	58
Measuring A Shadow	Math	6th	59
Evaluations Please			60
Bibliography			61

AN OPEN LETTER TO THE READER

Dear Friend:

The primary objective of this book is to get you and your class outside and to help that be a positive learning experience. In order to do that we the writing team, adopted three goals which each lesson plan and activity must satisfy.

1. All outside activities teach things which have to be taught anyway in a standard curriculum.

2. Each activity should be usable on virtually any school site. Exceptional school sites or fancy developed areas are not needed.

3. The lesson plans demonstrate that the outdoors is an interdisciplinary classroom. The outdoors knows no subject matter limitations. You can teach math, art or English outside, not just science.

Why do we want you to take your students outside? Why leave the familiar confines of the classroom? Consider these reasons.

1. The classroom is a small area used very intensively. The school grounds are many times larger and much less intensively used.

2. The classroom environment requires controls on shouting, running, spilling, breaking and many other active, loud or messy goings on. These controls are often less necessary outside.

3. It is often more difficult to experience and study nature inside than it is outside.

4. Kids and teachers like to get outside occasionally, either for the sheer joy of it or for the variety from classroom activity, or both.

5. Teachable moments that occur outdoors are likely to be different than those which occur indoors and are likely to stimulate different students.

6. It is easier to use "hands on" techniques outside, at least for many concepts. How can you show someone a hectare inside the classroom? It is our premise, by the way, that "hands on" techniques are very attractive teaching tools. We have used a lot of them.

When we first began this project, we reviewed dozens of curriculum packages. Many of these had excellent ideas and even complete lesson plans. Our first question was "Are we reinventing the wheel? Have other people already addressed the goals we set for ourselves?" We felt they had not. Some of the lesson plans we found applied to the normal school site but entire curriculums did not. Some of the outdoor activities related to concepts which were already taught, but whole outdoor curriculums did not. The curricula we reviewed gave us valuable ideas but were not directly usable to accomplish our purpose.

One of the most exciting curriculums was put out by the Texas Educational Agency. It would give a possible outdoor activity and then list ten or twelve ideas for subject lesson plans to be developed from the activity. Using these concepts, a teacher could make a simple outdoor experience serve as the base to teach a concept in any of the various disciplines. We used this same approach to write Chapter 1. If you like to write your own lesson plans but need ideas, Chapter 1 is for you.

Chapter 2 is for teachers who like ready-made lesson plans. It includes a lesson plan in language arts, social studies, science and math for each of the K-6 grades. Consistent with our goals, these lesson plans are intended to help teach concepts which already need to be taught. We have tried not to add new work to your full schedule.

If you think you recognize elements of a lesson plan, you probably do. We found many good ideas that we adapted to our lesson plans. In each case, we credited the source of the idea so you can find the original if you wish.

Chapters 1 and 2 are largely independent of each other but do interrelate occasionally. An idea in Chapter 1 may be developed into a lesson plan in Chapter 2. You may wish to use these as examples for writing more lessons from Chapter 1 ideas.

A CAUTION

The golden age of rugged individualism, if it ever existed, is gone. You can no more do your own thing in your classroom than you can buy 50¢ a gallon gas. So, if you want to teach some of your classes outside, you can best win over all the important people who might be concerned. Go on the premise that anyone who can protest will, unless you get them on your side first.

The Principal - Obviously he or she will want to know ahead of time what is going on. Brief your principal on what you are doing and why.

The Parents - Any outside activity is either recess or a field trip to most parents. Make sure they know that from time to time the kids will be doing "class work" outdoors.

Your Fellow Teachers - This is probably the most critical. For some very professional reasons and some human nature ones, it is good to let your fellow teachers know what is happening. Perhaps you can avoid being outside certain windows or can stay away from the soccer field during recess or P.E. By letting the teachers know that you have firm plans, fewer teachers will accuse you of shirking "normal" teaching duties.

The Custodians - Some of the lesson plans suggest digging holes, staking out garbage and other activities seemingly designed to get you in trouble with your custodian. Talk with the custodian about your plans and see if he or she can help you out.

The Students - Obviously your students need to know the reasons for going outside. Teaching outside requires either greater discipline on the part of the students or greater discipline imposed by the teacher. Unless your students decide to provide the former, you will probably be happier inside.

Remember, if a person can't be part of the plan, he may be part of the problem. Involve as many people ahead of time as possible.

"HOW-TO" TIPS

We agonized over whether or not to include this section. Our own advice sounds so good to us that we want to share it. On the other hand, we do not want to sound condescending to teachers like yourselves who could undoubtedly give us tips. We decided to give these five tips and leave the rest to you.

1. It helps to inventory the features on your school site. That sounds complicated but it is not. It is really an organized attempt to look at the parts of your school grounds that have been overlooked for years. What you record is really not important. What is important is that you start looking at your school ground and analyzing how it can function as a classroom.

   Making this appraisal should flood you with new ideas on how to use your school grounds. Consider looking for some of these things:

   a) Under used or seldom used areas
   b) Over used or busy areas
   c) Areas where outdoor uses may conflict
   d) Areas where outdoor uses may conflict with indoor uses
   e) Sunny areas or shady areas
   f) Protected areas
   g) Unsafe areas
   h) Areas with lots of landscaping
   i) Areas with lots of weeds
   j) Areas that are neglected
   k) Transportation routes (foot or vehicle)
   l) Water drainage ways
   m) Equipment
   n) Hard surfaced areas
   o) Textures (walls, hedges, etc.)
   p) Shapes
   q) Examples of products or careers

2. You do not have to be expert on the outdoors to use these lesson plans. You can function very well in a facilitative role. Help the students in a situation where they can learn. If you find yourself in need of a natural science expert, have your students "visit" one in their school library.

3. Structure is important in taking kids outside. They will not be used to classroom discipline in the outdoors. It is entirely possible to have such discipline but you will have to plan for it, let the students know how and why it must work, and you and the students must work together to achieve it. Unless you and your students have a good idea what you want to get done and exactly how to do it, an outdoor experience can be unproductive.

4. Look for the teachable moment. The opportunity to teach willing students something they want to learn should not be missed simply because the lesson plan and the structure of the day did not foresee a teachable moment. If you are caught in a downpour, you may want to use the experience to focus on how it feels to be wet, on the temperature changes as the rain came, or on estimation of the number of gallons that fell on your school ground during the storm. If you are sufficiently flexible and innovative, even distractions can help teach your students.

5. If your first outdoor session is a disaster or even a mild blah, do not give up. You were probably not completely comfortable or successful the first time you tried to orchestrate a learning experience inside either. Analyze what went wrong, adjust, and try again.

BON VOYAGE

We hope that you find our efforts useful and fun to use. If you find that these ideas and lesson plans make it easier and more exciting to teach outdoors on your school site, we would appreciate hearing about it. If you find the opposite, we desperately need to hear from you. This is a first draft and we need the advice of those of you who find places where we missed the mark.

Sincerely,

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CHAPTER ONE

INTERDISCIPLINARY IDEAS

If you are the kind of teacher that likes to write your own lessons and just needs a few ideas to get started, this chapter is for you.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY:	Collect a variety of insects, snails, worms and other animals.
LOCATION:	Underneath and in bushes; landscaped area of schoolgrounds; Open grassy field when weather is warm and sunny, playfield; Underneath a board placed on a grassy area
SEASON:	Early fall, late spring
TEACHER NOTES:	Some collection techniques are: 1) Place a sheet underneath a bush and beat the bush with sticks. Insects will fall onto the sheet; 2) Place a board on the lawn and leaves for a few days or weeks, then turn the board over to see what is living underneath it. Hand lenses are useful if available.

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Read Charlotte's Web and as a literary spider, write a plan for catching a fly.
Social Studies	Select one insect or animal you found and describe how it affects the lives of people. (Easy ones are bees, worms, flies.)
Science	Collect and identify the different stages of the life cycle of a specific insect. Try to identify the life stage of each insect you collect.
Health	Identify local specimens which could be classified as dangerous to human health and explain how they might be dangerous. List things that insects do which are of benefit to people.
Mathematics	Weigh each specimen collected and count the number of legs. Calculate which specimen carries the most weight per leg. Trace insect movement on a paper. Measure distance traveled, rate of travel. Find speediest insect, slowest insect.
Art	Discuss the colors, lines, shapes, texture and design seen in the insects, worms, snails, and other animals collected. Use as ideas for drawing and painting.
Music	Create a sound composition imitating as many insect sounds as you can.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: On a sunny day, mark the shadows of different objects at 9:00 a.m., noon and 3:00 p.m.

LOCATION: Any open area with shadows

SEASON: All

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Write a fantasy about shadows using your imagination. Include a description of how a shadow changes from fall to spring. (Winter shadows are longer than summer shadows.)
Social Studies	Discuss sundials and calendars as used in early civilization. Are they still used today? Have you seen any?
Science	Discuss the position of the sun at each designated time of day and how the shadows change in size.
Health	Examine changes of the pupil of the eye in shade and sunlight. Discuss how the sun can affect skin pigment.
Mathematics	Calculate the height of a telephone pole on a tree by measuring its shadow (page 102 OE in Oregon School). Using a watch, calculate how long it takes the shadow to move a foot in distance.
Art	Construct a sundial and see if it works. Sketch an object and include its shadow. Do at different times of day and year.
Music	Do interpretive dances as objects and shadows. Play shadow tag to music.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: A look at the ball park community

LOCATION: The field, with backstop, if possible

SEASON: Early fall, late spring

TEACHER NOTES: Consider using this with 3rd and 4th grade students involved in Little League.

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Take a blind walk (blindfolded, holding hands) of the field and describe in writing "what you sensed."
Social Studies	Investigate what insects live in social communities around the baseball field.
Science	What kinds of plants are growing here? If no one walked or ran on them, what plants might start growing on the base lines?
Health	Become safety inspectors and go on a hazard inspection tour of the ball field. Note any potential hazards such as holes in the baseline and prepare a report to submit to the principal and the school custodian. Organize a litter patrol to clean up the schoolground.
Mathematics	Measure the distances between bases. How far does the ball need to be hit for a home run? How many miles per hour does each student run when he runs around the bases?(5,280 feet/mile)
Art	Re-enact Casey at the Bat with a narrator reading the poem or with a choral reading.
Music	Form a cheerleading group for your school teams. Make up your own cheers.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Look at a curb as an example of an architectural barrier.

LOCATION: On or near the curb

SEASON: Any

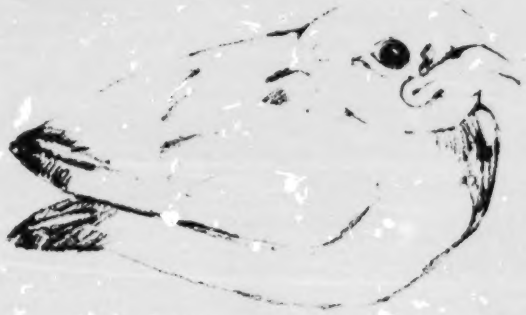
TEACHER NOTES: A curbstone is usually a metal plaque or a phrase stamped into the concrete of the sidewalk next to the curb. It is used to denote many different things such as who built the sidewalk or who owned that particular city block.

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Write a story about the time you invented the curb. Tell why you thought it was an important addition to streets, what you think of its widespread use around the world. Looking back, are you glad that you invented the curb or do you wish you had not invented it?
Social Studies	Discuss why curbs exist. Find a curbstone near your school or find a picture of a curbstone. What are curbstones and why do they exist? What part of a town would be most likely to have curbstones? What historical significance does your particular curbstone have?
Science	Does any water run down the gutter next to the curb when it rains? When there is water flowing in the gutter, measure the velocity and depth of the flow and estimate the amount of water being carried by your gutter. Measure the daily rainfall at your school and compare the rainfall measurements with how much water is carried by the gutter.
Health	List the ways in which curbs are beneficial for all people. How might curbs be a problem for people?(think of bikes, wheelchairs, etc.) What could be done to alleviate some of these problems?
Mathematics	Measure the height of the curbs next to your school and the curbs around entire block your school is on. Are the curbs the same height everywhere? Contact an urban planning architect to find out if there is a recommended standard height for curbs. If there is, find out why that particular height is popular.
Art	Paint a picture of one small segment of a curb. Try to find as many colors and shapes as you can. Look closely. Use a magnifying glass. Read the book All About A Sidewalk by Jean Craighead George and compare her curbs and sidewalks to the ones you can find near your school.
Music	Use a stereo tape recorder to record street sounds. Play back what you recorded. Does it sound different in stereo than if just one speaker is used? Why is stereo recording used to record music?

ACTIVITY: Observe the movements of birds for ten minutes.

LOCATION: Near bird feeders or near shrubs and bushes

SEASON: Any



SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Use library resources to discover which birds in your area migrate. Where do they go? How long does it take them? Learn about bird banding. Describe the birds you saw, using as many descriptive words as possible.
Social Studies	Describe some activities of birds that are similar to human activities. Are birds helpful to people in any way?
Science	Identify and classify the birds you observed.
Health	What foods do birds eat that we eat also? Which birds do we eat? Which of the four food groups do birds belong to?
Mathematics	Make bird food for the feeders. Have class do comparison shopping for ingredients. Learn how to measure ingredients for recipes. As a further challenge, convert the recipe measurements to the metric system.
Art	Make a kite shaped like a specified kind of bird (one that glides) and see if you can get it to fly.
Music	Listen to the sounds and songs of the birds you observed. Try to distinguish the different sounds they make. For further information listen to a record about bird calls. Songs of Western Birds, Donald Borror, 1971, Dover Publications, Inc., 180 Varick St., N.Y., N.Y. 10014. Available at Portland State University Bookstore.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Parking Lot Potpourri

LOCATION: On or near the parking area of the school

SEASON: Any

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Choose five license plates on cars in your parking lot. Write down all the letters in each license plate and see how many words you can compose.
Social Studies	Which states are represented by cars in the school parking lot? Using an atlas, find out how many miles, by car, it would be to that state's capitol city from your school. Discuss different kinds of parking structures (ramps, car elevators, etc.).
Science	What happens to rain that falls on parking lots? How could this water be reused? How is it disposed of?
Health	Make up safety rules for the parking lot. Explain the ways in which insufficient parking space tends to affect the behavior of people (mental health).
Mathematics	Estimate in feet the length and width of the parking lot. Use yard sticks or measuring tapes to measure the length and width. Compare results: What is the number of square feet? If the average size parking space is 9 feet wide and 24 feet long (this provides enough space for the cars to back up and drive out), what is the maximum number of cars that can park in the parking lot? Does your lot park more or fewer cars than the average?
Art	Observe automobiles passing the school building or parked. Which color car did you see most frequently? Design a car using basic shapes and different colors.
Music	Compose and/or perform a song or rhythmic reading on a day in a parking lot's "life".

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Look at asphalt. Where is it? Why is it there? How did it get there?

LOCATION: Any asphalt surface on the school grounds, but avoid heavy traffic

SEASON: Any

TEACHER NOTES: Contact local road department and see when they might be doing a paving or patching project near your school.

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	After doing some of the activities on this page, write an expository paper on asphalt and its uses.
Social Studies	Study blacktop process, how it is made, transported, laid down, different uses, what it is made of, how much it costs. Discuss the pros and cons of covering your school yard with asphalt. How about land in general.
Science	Observe temperature variations between blacktop and non-hard-topped areas on sunny and cloudy days. Discuss advisability of covering different areas with blacktop.
Health	Do a study of accidents occurring on blacktop vs. accidents occurring on dirt or grass. Decide which might be better for a play area, parking lot, etc.
Mathematics	What percentage of your total school yard is blacktop? How much would it cost to blacktop those areas if done today? (Get a per thousand sq. ft. quote from a contractor.)
Art	Trace your shadow on the blacktop. Trace it at different times of the day. Choose the one you like the best. Draw a large mural in colored chalk on the asphalt.
Music	Duplicate sounds of the blacktop with different musical instruments (sounds of rain on blacktop, children running on blacktop, balls bouncing on blacktop, etc.)

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Pick leaves from different plants and arrange them according to their color or shade of green. Do not pick so many leaves from a plant that you destroy it.

LOCATION: Landscaped or "weedy" area of your school grounds

SEASON: Early fall or late spring

TEACHER NOTES: For information on plant uses and plant dyes refer to:
Profiles of Northwest Plants, Peg Robinson, 1977, Green World Press, Portland, OR - $2.50
Ethnobotany of Western Washington, Erna Gunther, University of Washington Press, Seattle, WA - $2.95
Gentle Dyes, Cheryl Brooks and Carol Higgins, 1974, GAD Productions, Seattle, WA - $3.15

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Discuss the need for beautifying your school or neighborhood with trees and shrubs.
Social Studies	Can you find different ways people use plants on or adjacent to your school ground? (to walk on, to screen, to beautify, to eat)
Science	Collect leaves which have a variety of color. Explain the causes of variations in the color of leaves (fall - refer to U.S. Forest Service pamphlet Why Leaves Change Color, U.S.F.S. Information Officer, P.O. Box 3623, Portland, OR 97208.)
Health	Collect leaves that have medicinal or nutritional uses or are poisonous (refer to list in Teacher Notes for examples).
Mathematics	Trace the outline of each leaf on a piece of paper and draw all the lines of symmetry.
Art	Make charcoal rubbings or spatter paintings of five leaves. Try using leaves to make natural dyes for tie-dyed handkerchiefs or T-shirts (refer to natural dye books listed above).
Music	Try to reproduce the sounds of leaves rustling in the wind.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Focus on the flagpole

LOCATION: Near the flagpole

SEASON: Any

TEACHER NOTES: See additional information on measuring heights attached to the activity on telephone poles.

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Rewrite the Pledge of Allegiance. Find synonyms for each word with Pledge and rewrite the Pledge using the synonyms you like best.
Social Studies	Investigate the history of the American flag. Who created the design? When was it first used?
Science	Has the flagpole been affected by the weather? Explain why or why not.
Health	This is an opportunity to use your creative abilities. Generate and develop a short activity idea which relates health with the study of flagpoles, and if you can think of anything, please let us know about it.
Mathematics	Estimate and then measure the height of the flagpole. Guess and then measure the circumference of the flagpole. Make sun dial marks on the school grounds using the shadow of the flagpole at different times of the day. For a challenge, calculate the volume of the flagpole.
Art	Investigate the design transitions of the American flag. What major designs were considered?
Music	Find the history of our national anthem. Learn to sing the "Star Spangled Banner."

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Using playground equipment

LOCATION: In and around the playground equipment

SEASON: Any

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Write an essay for your teacher stating why you think it is important for children to have good playgrounds at school and time to use them.
Social Studies	Count or estimate the number of boys and girls playing on the school ground at this time of day. Do this several times a day - before school, after lunch, after school. What games are boys playing? What games are girls playing? What games do they play together? How many of the children seem to be "just standing around doing nothing?" Explain why you think they are just standing around. What equipment is used? If you were to take out one piece of equipment, what would it be? What age group would miss it most?
Science	What raw materials were used for the playground equipment?
Health	Study each piece of playground equipment. Write a short paragraph on how each contributes to your physical fitness.
Mathematics	Identify as many different shapes as you can. Sketch all the shapes. Cut them out of construction paper back in the classroom. Which pieces of equipment have similar shapes?
Art	How would you plan a playground? Would you use the same type of equipment or different? Draw a map of a playground that you would like to see at your school or design new playground equipment and build a model using toothpicks or straws.
Music	Write a musical revue about your playground using songs you know. Examples: Merry-go-round - "I Like to Catch Brass Rings on the Merry-Go-Round"; baseball diamond - "Take Me Out to the Ball Game"; See-Saw - "See-Saw - Marjorie Daw."

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Construct a wind vane and use it to find changing directions in the wind.

LOCATION: Choose an open area away from wind barriers such as a row of trees or a building.

SEASON: All seasons

TEACHER NOTES: Have the students design their own wind vane.

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	On a windy day, write a paper on how it feels to stand in the wind.
Social Studies	Discuss how agricultural endeavors have been influenced by the wind. Discuss how various cultures view the wind.
Science	Discuss the effect of wind on the environment. Measure the wind direction in several areas. How does man harness the wind?
Health	Discuss the effects of wind on your body temperature (refer to wind chill chart on bottom of page).
Mathematics	Record wind direction periodically throughout the day. Plot the data gathered.
Art	Have each student make and decorate a wind vane.
Music	Listen to the sound of the wind in different areas - under trees, around the corner of a building, out in the open. On a very windy day, tape record the wind in different areas. Make and hang wind chimes

Wind Chill Equivalent Temperature Table

	45	40	35	30	25	20	15	10	5	0	- 5	-10	-15
5	43	37	32	27	22	16	11	6	0	- 5	-10	-15	-21
10	34	28	22	16	10	3	- 3	- 9	-15	-22	-27	-34	-40
15	29	23	16	9	2	- 5	-11	-18	-25	-31	-38	-45	-51
20	26	19	12	4	- 3	-10	-17	-24	-31	-39	-46	-53	-60
25	23	16	8	1	- 7	-15	-22	-29	-36	-44	-51	-59	-66
30	21	13	6	-2	-10	-18	-25	-33	-41	-49	-56	-64	-71
35	20	12	4	-4	-12	-20	-27	-35	-43	-52	-58	-67	-74
40	19	11	3	-5	-13	-21	-29	-37	-45	-53	-60	-68	-76
45	18	10	2	-6	-14	-22	-30	-38	-46	-54	-62	-70	-78

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY:	Hula hoop plant study. Observe the plants in an area encompassed by a hula hoop thrown out on the school ground. Carefully dig up one plant of each type in the hula hoop area and observe the plant's characteristics.
LOCATION:	Anywhere on the school grounds - try to include both sunny and shaded areas. Measure a 100 foot line and mark with string. Mark off intervals on a string every 5 to 10 feet.
SEASON:	Late spring or early fall
TEACHER NOTES:	Profiles of Northwest Plants, Peg Robinson, 1977, Green World Press, Portland, Oregon $2.50

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Pretend you are one of the freshly dug plants. Write your reactions to being out of the ground.
Social Studies	Investigate further to find out if any of these plants were used as food or medicine.
Science	Describe the roots and leaves of each plant. Observe and record on which side of each plant there is more root and leaf growth. Explain.
Health	Determine which of these plants are beneficial in health care. Are any harmful? (Refer to book listed in teacher notes.)
Mathematics	Measure the distance between some of the plants. Do members of a certain species live close together or far apart? Do different species live close together or far apart?
Art	Sketch one of the plants. Find a book(s) at your library which has botanical drawings. What parts has the artist drawn and why?
Music	Write a poem about grass, weeds or trees and set the words to one of your favorite tunes.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Select a flowering plant and count the number of insect visitors it has in a five minute period of time.

LOCATION: Landscaped or natural area

SEASON: Spring or early fall

TEACHER NOTES: Insects, Zim's Golden Nature Guide

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Write a story describing what kinds of plant you would choose to visit if you were a hungry insect. Why?
Social Studies	Describe how one or two of the insects observed compare to our various ways of life (i.e. working together, special jobs, living together, soccer team or other team games).
Science	Observe the insects and their activities. Discuss similarities and differences.
Health	Find out if any of the insects observed can injure people in any way. What diseases are carried by insects?
Mathematics	How many insects of each type were observed during the five minute period? Estimate how many could be observed in one hour.
Art	Out of bits of throw away material (pipe cleaners, cloth material, feathers, cones, etc.) create new insects and assign each a role in life.
Music	Create an orchestra of insect sounds by having each student make a different sound. At what time of day in nature do we hear a "natural insect orchestra?" (summer evenings)

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Collect a variety of wild flowers and observe them.

LOCATION: Landscaped or natural weeded area - almost any plant has some sort of flower

SEASON: Spring or early fall

TEACHER NOTES: Local noxious weeds can be identified by County Extension Agents, 4-H Leaders, FFA Clubs or County Weed Control Officer

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	While viewing wild flowers growing in their natural surroundings, write a haiku or cinquain poem about wild flowers.
Social Studies	Some weeds are considered "noxious" or especially harmful if allowed to spread. See if you can find any on your school yard. Why are they noxious?
Science	Classify each flower according to color, smell, type of plant, and attractiveness to bees. Discuss bee pollination procedures. Study the different flower parts. Discuss seed dispersal.
Health	Discuss pollen and allergic reactions to it.
Mathematics	Find the average diameter of dandelion flowers in your school yard. What is the range of diameters - smallest and largest?
Art	Dry flowers in a flower press. Use the dried flowers to make pictures.
Music	Learn some songs about wild flowers or flowers in general, and teach to the rest of the class. Make up your own.

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Lie on your back and watch the sky on a partially cloudy day.

LOCATION: Open, grassy area

SEASON: Fall, spring

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	As a group, think of as many adjectives as you can which relate to clouds. Write a descriptive paragraph using as many adjectives as you can.
Social Studies	What effects of the clouds can you see around you? Discuss the effects of clouds on areas of your state and on the people living in these areas.
Science	Spot and identify different types of clouds. Predict weather changes from clouds and their speed of movement. An excellent cloud chart for weather forecasting may be obtained from Don Kent Instruments, Downeaster Manufacturing Company, Inc., Weymouth, Mass. 02188. Order model WFC - $2.95 each.
Health	Discuss the effects of cloudy versus sunny days on your moods. Discuss how different types of weather affect your work performance.
Mathematics	Estimate the size and speed of clouds by comparison with stationary objects on earth or by measuring the time it takes for the edge of a cloud-shadow to pass two points on your school yard.
Art	Sketch a cloud whose shape you particularly like. Did the clouds change their shape while you were sketching?
Music	While you watch the clouds, listen to a cassette tape recording of portions of the Grand Canyon Suite. Does any part of the music match the clouds you see?

CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Looking at telephone poles and power lines

LOCATION: Near telephone or power lines within the school block

SEASON: Any

TEACHER NOTES: Height by proportion

$$z = \frac{(a + b)\, y}{a}$$

SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Discuss communication systems. Write a description of a telephone pole for someone who has never seen one.
Social Studies	Are telephone poles important to us? Why? We certainly have a lot of them. What would happen if we did not have trees for telephone poles? (Concrete poles, underground lines are both expensive.) In some parts of town, lines are buried underground. Do you know why? (esthetic reasons mainly, sometimes for safety or to minimize sidewalk obstructions) Discuss the effects of telephone and electricity on our life style.
Science	Has the pole been treated with anything to preserve it? Find out more about different methods of preserving or protecting wood from decay and wear. Discuss what is transmitted via power lines. Invite a power pole maintenance person to talk to the class about decay or a lineman to discuss power lines.
Health	Discuss electrocution. Talk about how to safely deal with downed lines in a storm or accident. Review first aid procedures for treating electric shock victims.
Math	Make a sundial using a telephone pole. Learn how to measure the height of a telephone pole using triangulation method diagrammed under Teacher Notes.
Art	Sketch a line of telephone poles using proper perspective. Look at the weathering pattern in wood of old poles. Observe paintings/landscapes where the artist has utilized telephone poles. Were they used to show perspective, instill a mood?
Music	Listen to recordings by the composer John Cage as examples of musical composition using industrial noises. Using the hum of major power lines, compose a musical piece which has an obligato humming background.

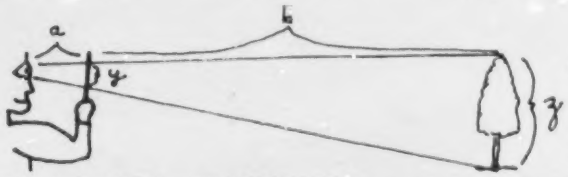
CHAPTER ONE: INTERDISCIPLINARY IDEAS

ACTIVITY: Select one tree and make a detailed study of it.

LOCATION: Any tree the student chooses

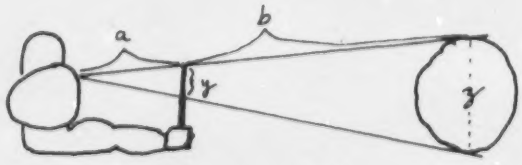
SEASON: Fall, winter, spring

TEACHER NOTES: Do individually or with small groups:



$$z = \frac{(a + b)\, y}{a}$$

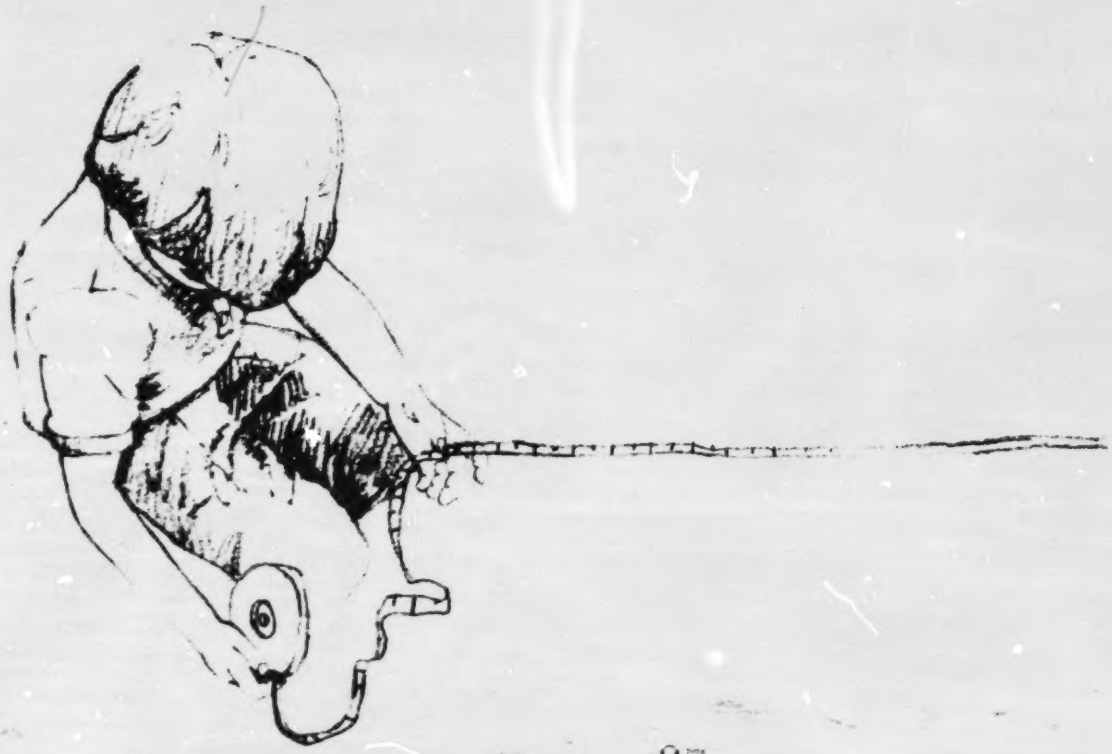
SUBJECT AREA	CORRELATING ACTIVITIES
Language Arts	Tell what things you like about the tree. What made you choose it?
Social Studies	What are the reasons for having trees on your school yard? If you could change the trees somehow, what would you do? (bigger or smaller trees, more or fewer trees)
Science	Make a dichotomous key for the trees on your schoolgrounds.
Health	Describe the diseases to which this tree might be susceptible. View the filmstrip "Trees Are Like People", available through your local office of the Bureau of Land Management, U.S. Department of the Interior.
Mathematics	Measure the height of the tree. Measure its circumference and find its diameter by division. Find its diameter by proportion (like measuring its height only. Get up closer and measure sideways.)
Art	Sketch the outline or skeleton of a deciduous tree and a conifer. Can you tell what type of tree it is by looking at its outline or symmetry (from a distance)?
Music	Sing the song "I think that I will never see, a poem as lovely as a tree." Are the feelings in the song about trees like your feeling about the trees on the school yard?



CHAPTER TWO

LESSON PLANS

This chapter contains 28 lesson plans, some with their own worksheets. There is a lesson plan in language arts, social studies, science, and math for each of the K-6 grades. Most lesson plans can be easily adapted for a different grade level. Some lesson plans are original and others are adapted from other works.



ACTIVITY TITLE

The Five Senses

SUBJECT AREA

Language Arts

GRADE LEVEL

Kindergarten

GOALS:

- [X] INDIVIDUAL
- [X] LEARNER
- [ ] PRODUCER
- [ ] CITIZEN
- [ ] CONSUMER
- [ ] FAMILY MEMBER

SKILLS

Using their five senses (observing, smelling, hearing, touching, careful tasting, and speaking)

PURPOSE

To experience and verbalize use of the five senses; to become more aware of how much we rely on all of our senses; to interpret the world around us.

PERFORMANCE INDICATORS

Students will be able to name the five senses and describe verbally what they experience through their senses.

MATERIALS/RESOURCES

Plant materials can be found in school lawn or adjacent vacant area. Stay close or on school ground. Examples of specimens to be used with the various senses:

- Sight: leaves of various shapes and colors
- Hearing: crumbling, dried leaf, walking through dried leaves, trees in the wind, seed or seed pod that rattles, twig that snaps
- Smell: flowers, crumpled leaves, cut grass
- Touch: leaves with different textures, bark of different trees, shrubs
- Taste: clover, grass blade (Caution should be taken to avoid plants that have been sprayed or are harmful when tasted.)

REFERENCES

Lesson Plans for Using the Outdoors in Teaching, Grades K-3, by Mary D. Houts

IMPLEMENTATION

1. Have students in a circular or amphitheater style sitting arrangement outside.
   - "How do we gather information about the environment? In what different ways do we experience things? What tools do we use to observe things?"
   - "Let's use our different tools to discover things about some plants."
2. Pass the "sight specimens" out to the students. Have enough samples so that each student gets one.
   - "What can you discover about this object by looking at it?"
3. Distribute the "hearing specimens."
   - "What sound does the object make?"
4. Distribute the "smell specimens."
   - "Smell the object, crush if necessary to release odors. Describe how it smells."
5. Distribute the "touch specimens."
   - "What does the object feel like to your touch? Do all parts of the object feel the same?"
6. Distribute the "taste specimens." Be sure they are safe.
   - "Taste each object. Describe the taste. Is it like anything you know?"

NOTE: Caution should be taken to avoid using plants that are potentially harmful to students.

ACTIVITY TITLE

Differences and Similarities

SUBJECT AREA

Social Studies

GRADE LEVEL

Kindergarten

GOALS:

- [X] INDIVIDUAL
- [X] LEARNER
- [ ] PRODUCER
- [ ] CITIZEN
- [ ] CONSUMER
- [ ] FAMILY MEMBER

SKILLS

Noticing similarities and differences from observation

PURPOSE

To make comparisons of how magazine pictures are similar and different from actual objects on the school ground.

PERFORMANCE INDICATORS

Student will be able to correctly identify one way in which a picture of a school yard object is the same as the school's actual object and one way it is different.

MATERIALS/RESOURCES

Picture of a boy or girl - other pictures cut from magazines of things that you will be able to see as you walk around the school, such as: door, fence, window, fire hydrant, swing set, bush, car, child, trees, signs, buildings, barriers, paths, houses.

Attach each picture to an 8½" X 11" piece of mounting paper.

IMPLEMENTATION

Inside Activities

Show a picture of a boy or girl to the class. Have one of your students stand next to the picture so that the class can observe both the student and the picture together.

- Observe the picture and the student.
- What are some similarities between the boy or girl in the picture and the student?
- What are some differences?

Outside Activities

Take the class outside with some pictures and observe how the things in the picture are similar to or different from the things around the school.

REFERENCES

Lesson Plans for Using the Outdoors in Teaching, Grades K-3, by Mary D. Houts

ACTIVITY TITLE
Trees

SUBJECT AREA
Science

GRADE LEVEL
Kindergarten

GOALS:
- [X] INDIVIDUAL
- [X] LEARNER
- [ ] PRODUCER
- [X] CITIZEN
- [ ] CONSUMER
- [ ] FAMILY MEMBER

SKILLS
Observing, use of senses, dramatizing

PURPOSE
To observe trees and all their parts, and what lives on them.

PERFORMANCE INDICATORS
Students will be able to describe a tree part using two adjectives.

MATERIALS/RESOURCES
Large tree in school yard.

IMPLEMENTATION
1. Use a picture of a tree to talk about the parts of a tree (trunk, branches, leaves or needles, buds, flowers, seeds, etc.)
   Ask "why do people plant trees?"

   Have students role play being a tree, everyone being a different tree. Ask such questions as "Where are your roots? Where are your branches? Where is your trunk? Where are your cones? Where are your seeds?"

   Examine a tree. Ask "What do the different parts of the tree feel like? Find a part that feels rough and a part that feels smooth. Can you find parts that feel fuzzy, slick, slimy, slippery, sticky, prickly, etc.?"

   Ask "How many of us would it take to reach around the tree with our arms outstretched?" Find out by trying.

   Ask other questions as needed to help the students observe and describe the characteristics of the tree.
2. Have the students work with you to make a chart like the one that follows. In the last column, have students show examples of the description they came up with in the third column. Add more parts to the tree as seen necessary.
3. If you do this activity in the fall or winter, keep track of your trees through the remainder of the school year to see the changes.

REFERENCES
Lesson Plans for Using the Outdoors in Teaching, Grades K-3, by Mary D. Houts

TREES

Draw a picture of what you observed	Name of what you observed	Description of what you observed	

In the last column have students show examples of the descriptions they came up with in the third column. Add more parts to the tree as seen necessary.

ACTIVITY TITLE

Outdoor Sets and Counting

SUBJECT AREA

Math

GRADE LEVEL

Kindergarten

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Observing, making sets, counting, Noticing similarities/differences

PURPOSE

To use natural objects in counting.
To collect natural objects and put them into sets.

PERFORMANCE INDICATORS

Students will be able to discuss the concept of "sets".

MATERIALS/RESOURCES

IMPLEMENTATION

Announce - "Please stand up if you are a girl." Then ask "How many are in this 'set' of people who are girls?"

"Please stand up if you have blue eyes. How many are in this 'set' of blue-eyed people?"

"Please stand up if you have a brother. How many are in this 'set' of people who have brothers?"

"We will be collecting things outside that form sets. For instance, you might want to collect a set of four green leaves or sticks or white rocks. Everyone needs to make at least one set. Your sets should not have more than ten members. Please do not pick up leaves from our special plants (name which areas are 'special'). Bring your set of things back to this area in five minutes."

Ask the students to describe their sets. What is the number of elements in the set? How are they similar? Has anyone else collected a set of the same things? How many different kinds of sets were collected?

Introduce the idea that numbers themselves can be grouped in sets.

Variation: Have students collect sets with various numbers of members. One might collect a set with various numbers of members. One might collect a set of one item and a set of nine items. Another might collect sets of two and eight items. This would allow all sets (up to ten) to be represented.

REFERENCES

Lesson Plans for Using the Outdoors in Teaching, Grades K-3, by Mary D. Houts

ACTIVITY TITLE

Cloud Shapes

SUBJECT AREA

Language Arts

GRADE LEVEL

1st Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Listening, observing, using their imagination, speaking to classmates, writing or telling a story

PURPOSE

To develop listening skills. To develop observation and imagination. To share creative ideas with classmates.

PERFORMANCE INDICATORS

Students will be able to create a story based on a structured observation of nature.

MATERIALS/RESOURCES

Book about clouds (example The Sky Dog, by Brinton Turkle)

Plastic tarps or dropcloths (enough for each student to lay on) - optional

Scraps of material, paper, tempera paint, etc. (to be used in creating cloud sculpture)

IMPLEMENTATION

1. Choose a day when the sky has lots of cloud formations.
2. Read aloud to the class a story about clouds (example - The Sky Dog, by Brinton Turkle).
3. Move the class outside and have the children lie down on their backs to look at the cloud shapes, providing a "lay-upon" if necessary.
   a) Encourage students to use their imagination to see as many shapes and figures as they can in the clouds in the sky.
   b) Encourage them to look where the clouds aren't. Are there interesting shapes and figures there too?
   c) Have students share some of their shapes, forms and creations. Start off with each student sharing something they saw.
4. Back in the classroom, ask the students to construct a small cloud using scrap materials on hand (cotton balls, wadded paper, etc.) Working individually or in small groups, have the students scavenge throughout the classroom and on a short walk outdoors for materials they feel would be suitable to make a cloud sculpture.
5. Have students write or tell a story about their creations. Have students share their stories with classmates.

REFERENCES

Lesson Plans for Using the Outdoors in Teaching, Grades K-3, by Mary D. Houts

ACTIVITY TITLE

Litter Critters

SUBJECT AREA

Social Studies

GRADE LEVEL

1st Grade

GOALS:

- [X] INDIVIDUAL
- [ ] LEARNER
- [ ] PRODUCER
- [X] CITIZEN
- [X] CONSUMER
- [ ] FAMILY MEMBER

SKILLS

Awareness, collecting, discriminating, displaying

PURPOSE

Awareness of litter on school grounds and discriminating whether the litter will decompose or not.

PERFORMANCE INDICATORS

Students will be able to describe where litter comes from and how long it lasts.

MATERIALS/RESOURCES

Tour local Oregon Department of Environmental Quality (DEQ) office. Slide programs and literature show proper disposal in landfills is better than littering, recycling is better than landfills and refusing to buy what you do not need is the best of all.

Your local Stop Oregon Litter and Vandalism (SOLV) has other resources - a slide program of Oregon Litter and Vandalism problems, buttons, litter bags for cars, etc.

Other sources for litter bags: local BLM office; Keep Oregon Green, P.O. Box 12365, Salem, OR 97309; local U.S. Forest Service Office.

IMPLEMENTATION

Talk about man-made litter. Where does it come from? Why do people throw it down instead of away? What happens to it if no one picks it up?

Collect litter on your school grounds for ten minutes. (Set whatever boundaries are needed to keep control.) You may want to provide litter bags.

Find a sheltered area to sort through the litter. Separate things which decompose easily from things which do not. What would happen to things like papers if they were left outside for a long time? What would happen to litter which does not decompose?

Discuss what we should do with our garbage.

Make a bulletin board display of the litter the class found on their school ground. Consider how long some litter lasts and if it can be used again.

Variation: Make a mobile or sculpture or reuse litter found on your school site.

REFERENCES

Three "R's" as a Guide to the Best Use of our Finite Resources, Environmental Education Association of Oregon, 1977

ACTIVITY TITLE
Sunlight and Shadows

SUBJECT AREA
Science

GRADE LEVEL
1st Grade

GOALS:
- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Observation
Analysis of date

PURPOSE
To begin to understand the relationship between sunlight and shadows.

PERFORMANCE INDICATORS
Students will be able to describe how shadows are formed and how they move.

MATERIALS/RESOURCES
Locate flagpole, tetherball pole or fenceposts.

Choose marking technique (stakes, nails, chalk or paint) and secure the supplies.

Paper for recording measurements, tape measures.

REFERENCES

IMPLEMENTATION
Choose a flagpole, fencepost or tetherball pole that throws a shadow on the playground. If you want to use smaller groups, choose several fenceposts and divide your class accordingly.

On a sunny day with little chance of clouds, announce to your class that you have a special project for today. Each hour the class will observe the shadow of the pole(s). They will mark where the top of the shadow is and measure how long the shadow is. Record the time of each measurement and the length of the shadow. Large nails can be driven into the ground or blacktop to mark shadow locations if chalk or paint would be inappropriate.

The children should discuss why the shadow exists, which direction it is moving and how the shadow length changes with time. You may wish to have them use the pole for a sun dial or draw pictures which illustrate the movement of the shadow.

Be careful when talking about movements of the sun. It certainly appears that the sun moves and causes shadow movement, but that is, of course, incorrect. The earth's rotation is the real culprit and that concept is hard to explain to first graders.

Other activities could include tracing their friend's shadow on the playground or on butcher paper or playing shadow tag.

ACTIVITY TITLE

Outdoor Shapes

SUBJECT AREA

Math

GRADE LEVEL

1st Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Observing, comparing, speaking, drawing

PURPOSE

To be able to recognize different shapes of objects in the outdoors.

PERFORMANCE INDICATORS

Student will be able to identify a square, a rectangle, a circle, a triangle and an oval by name and by form.

MATERIALS/RESOURCES

Cards cut the shape of these forms: oval, square, rectangle, circle, triangle. (Index cards with one of the five shapes on it will also do.) Add more complicated shapes if necessary (cube, pyramid, cylinder, sphere, box).

IMPLEMENTATION

Inside Activities:

1. Draw the five shapes on the board, and have the children name them.
2. Who sees something in the room that has the same shapes as one of these shapes?
3. Give each child a card cut the shape of one of the five forms. Explain that you will be going outside to look for these shapes.

Outside Activities:

1. Ask the children to stop and spot one thing that has the same shape as their card. From where they are standing, ask for as many examples of objects from all the students having that particular shape. Teacher should record findings. Go through all the different shapes. After each shape, open discussion to students who do not have that shape of card, but see a new example to add to the list. Proceed around school ground if necessary.

   If helpful outside, ask these three questions:
   1. Can you find things that have the same shape as the shape of your card?
   2. Who can see a triangle? (or some other shape)
   3. What shape is the door? What shape is the tree?

Back in the classroom, outline the shapes on the blackboard, big enough to write in all the examples seen. Have children recall examples, filling in ones that are left out. If helpful have students practice drawing shapes on the board, too.

REFERENCES

Adapted from Lesson Plans for Using the Outdoors in Teaching, Grades K-3, by Mary D. Houts

ACTIVITY TITLE

How Does It Feel?

SUBJECT AREA

Language Arts

GRADE LEVEL

2nd Grade

GOALS:

- [X] INDIVIDUAL
- [X] LEARNER
- [ ] PRODUCER
- [ ] CITIZEN
- [ ] CONSUMER
- [ ] FAMILY MEMBER

SKILLS

Alphabetizing, empathy, inferring

PURPOSE

To develop empathy skills and imagination. To begin learning alphabetizing.

PERFORMANCE INDICATORS

Student will be able to tell how he thinks an inanimate object might feel, and to alphabetize words by the first letter.

MATERIALS/RESOURCES

IMPLEMENTATION

Go out on the school site with students and list things that the students see. Encourage students to spot objects found on their school site - things that are special - swing set, hopscotch square, flagpole, stairs, shrubs. (Teacher should be the recorder for efficiency.)

Have the students choose one of the items from the inventory list and have them pretend they really are that thing.

Ask appropriate questions, such as "How do you feel? Does the wind, rain (weather in general) affect you in any way? Does the sun affect you?"

Try these questions, with students being their object. "What did you have for breakfast? What are you doing right now? Who are your friends?"

Transition: "All of you, as your chosen schoolground object, have a place in the alphabet, as well as on the schoolground. Please write your objects name on the index card. We will go inside and figure out our correct alphabetical order."

Inside: Alphabetize the list of objects with students by either writing them all on the board and having students choose the correct order, or just writing the unchosen items and having students state when their objects correct place in the alphabet comes up.

REFERENCES

ACTIVITY TITLE
Mapping

SUBJECT AREA
Social Science

GRADE LEVEL
2nd Grade

GOALS:
- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Observing, estimating, drawing, writing and spelling

PURPOSE
To develop an awareness of what a map is and how to make one. To become aware of the facilities and objects on their school ground.

PERFORMANCE INDICATORS
Students will be able to map small areas.

MATERIALS/RESOURCES
Pencils
Paper (ditto)
Map of school site, preferably fastened to a hard backing (enough for two per student)
Samples of different maps

IMPLEMENTATION
Discuss with the students what a map is. Explain that a map tells something about an area using symbols to describe physical things in that area. Start by simply mapping your classroom on the chalkboard.

Pass out copies of your school ground map. Ask students to map from memory the trees, bushes, sidewalks, play equipment, etc. on their school ground. Have them use symbols to represent the objects and place the symbols about where they are on the school ground.

Dividing into teams, pass out new copies of the map. Have the teams go outside and map the school ground again. (You may want to map only a part of the area.)

Ask the students "How did your first map compare with the second?" or "What symbols did you use to stand for each?"

Post each team's map and let the students compare them for accuracy and completeness.

Variations:

On large school sites, you may want to have each team map a different part of the site, then combine their efforts in a large single map.

REFERENCES
Outdoor Education Mini-Sites - Highline

ACTIVITY TITLE

Cracks

SUBJECT AREA

Science

GRADE LEVEL

2nd Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Observation, measuring, inferring

PURPOSE

To determine the location of the crack. To measure their qualities. Reason for their existence.

PERFORMANCE INDICATORS

The student will be able to measure distances less than ten feet using direct and indirect measurement techniques.

MATERIALS/RESOURCES

Measuring devices: ruler, yardstick, string, paper clips, clipboards, pencils

REFERENCES

Our Paved Environment - Paved Areas, City of Hamilton

IMPLEMENTATION

Skills needed: Pupils might find it easier to use easily understood units (straw lengths, palm widths, finger widths) rather than inches or feet. Use string to measure the length of crooked cracks. Metric measure could be used also.

Procedure:

The students working in pairs could have the following assignment sheet to complete during their examinations of the paved area. The pupils might also sketch in the pattern of the cracks in the area that they studied.

a) Make a list of all the things you found inside the crack.
b) Where do most of the cracks seem to be?
c) Measure several cracks and complete the chart. To find the depth, straighten out a paper clip and insert it into the crack to find its depth.

CHART

Crack	Length	Width	Depth	General Direction	Materials Found In Each Crack
1					
2					
3					
4					
5					
6					

Continued

Activity Title: Cracks
Subject Area: Science
Grade Level: 2nd Grade

IMPLEMENTATION (Continued):

Exchange class data and discuss:

a) What causes cracks? (tree roots, frost, weight, traffic, etc.)

b) Why are cracks concentrated in certain areas? (see (a))

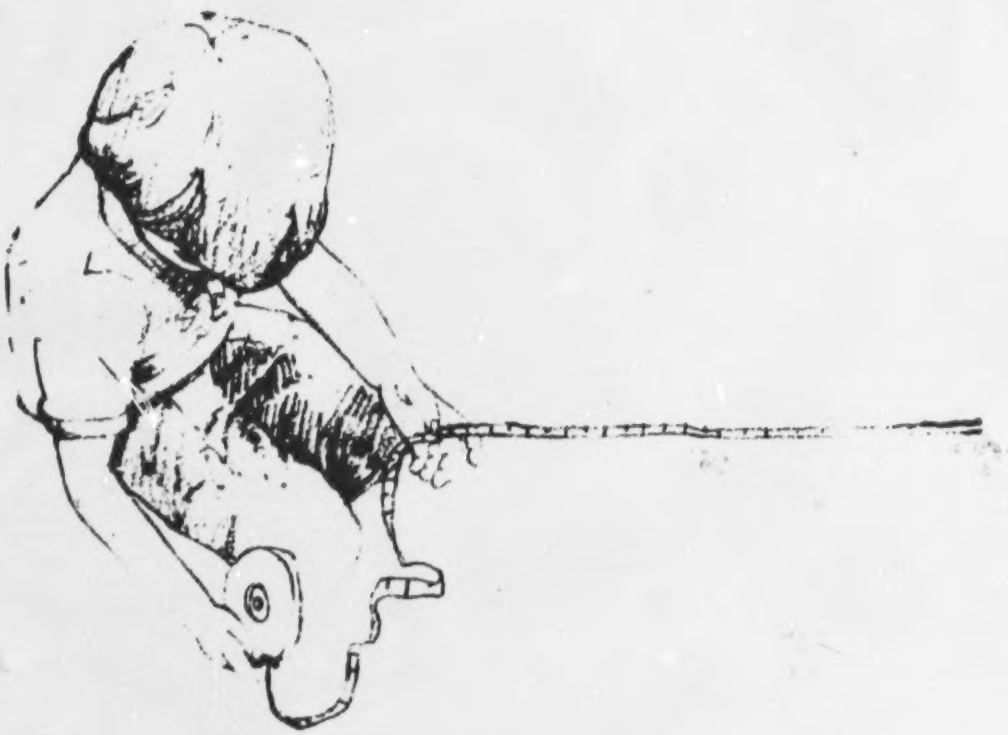
c) How can the paved area be used by the plants and animals? (shelter, food, storage)

d) What do you think the paved area will look like in 20 years with or without man's care? How long ago was it paved?

e) Do cracks change in times of day, seasons, different weather?

f) How do plants affect the pavement?

NOTE: If you have an exceptional class these questions could become problems for the pupils to discover on their own.



ACTIVITY TITLE

Hop, Skip and Jump

SUBJECT AREA

Math

GRADE LEVEL

2nd Grade

GOALS:

- [X] INDIVIDUAL
- [ ] LEARNER
- [ ] PRODUCER
- [X] CITIZEN
- [ ] CONSUMER
- [ ] FAMILY MEMBER

SKILLS

Measuring, adding two digit numbers

PURPOSE

To recognize a "real-world" situation in which accurate arithmetic skills are important.

PERFORMANCE INDICATORS

Student will be able to describe one reason why it is important to be able to add accurately.

MATERIALS/RESOURCES

72" measuring tapes (three or more) or 2 meter measuring tapes (three or more)

Three markers or more (sticks, batons, rocks, etc.)

Recording sheets

Your school physical education teacher can help you find information on hop, skip and jump competitions.

IMPLEMENTATION

Ask your students if they want to have a hop, skip and jump contest outside. They will all get to compete, but they all need to help measure each others efforts.

Explain that the hop, skip and jump are done right after each other in a continuous sequence. Someone will need to mark where the hop stops (and the skip begins), where the skip stops (and the jump begins) and where the jump stops. In track competition, only the ending point is marked.

Organize the class as needed and hold the competition. After each person is done, the class should measure and record the length of the person's hop, skip and jump (three measurements). Consider measuring in inches, and in centimeters. This will give you more numbers to work with when the addition part comes.

Have each student total his or her distance without talking with anyone else. Hand in that total, or totals if measuring in more than one unit.

Have each student total friend's distances and hand those in without talking or checking.

Arrange the self-tallied totals by order of magnitute (perhaps the class could do this for you). Do the same for the friend-tallied totals. There will undoubtedly be some errors of addition in both lists.

Ask the students why the lists are not the same. "What can we do to see what distance is correct?" Have the class follow through and correct the list.

Continued

REFERENCES

Activity Title: Hop, Skip and Jump
Subject Area: Math
Grade Level: 2nd Grade

IMPLEMENTATION (Continued):

Arrange the list in the correct order and compare with the first two lists. "Why is it important to be able to do arithmetic correctly?"

Have the students write a story about a person who loses a competition because of an error in adding.

ACTIVITY TITLE

Riddle-Diddle

SUBJECT AREA

Language Arts

GRADE LEVEL

3rd Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Observing, writing riddles, dictionary use

PURPOSE

To use all their senses in describing something on the school site.

PERFORMANCE INDICATORS

Student will be able to describe an object using words relating to all five senses.

MATERIALS/RESOURCES

Pencils
Index Cards

IMPLEMENTATION

Take a walk with your students around the school yard, noticing interesting things. Encourage students to notice something they had never noticed before, and to use at least three of their senses in noticing it.

Next, tell students they are going to make up a riddle describing something on the school ground. There are two guidelines though - you must use all five of your senses to describe it, and you can't use the name of it in the riddle.

Pass out pencils and index cards. Tell students to keep their riddle secret because their classmates will try to guess what the answer is. Really try to describe it well, but ask for permission before they "taste" anything. Their riddle can be about something big or small, but they shouldn't be obvious about it while they are making it up.

Leader should circulate to help out where possible. Encourage students to spell words so they can read them. They can look up correct spelling when they get back inside.

After about 20 minutes or so, gather in a sharing circle to share riddles.

Extension: See if students can change their riddle so that it has two rhyming sentences.

REFERENCES

WHAT IS IT?

FILL IN THE BLANKS TO MAKE A RIDDLE:
(Keep this secret!)

MY OBJECT IS: _____.

MY RIDDLE GOES LIKE THIS:
(Read this out loud.)

THIS OBJECT IS THE SIZE OF A _____

AND IS A _____ COLOR.

IT FEELS _____

IT SMELLS _____

AND IT SOUNDS LIKE _____ WHEN I PUT IT UP TO MY EAR.

AN EXTRA CLUE IS _____

WHAT IS IT? _____

MY NAME IS _____

Example Worksheet from North Bend School District and Coos E.S.D.

ACTIVITY TITLE

Vehicle Adventure

SUBJECT AREA

Social Studies

GRADE LEVEL

3rd Grade

GOALS:

- ☐ Individual
- ☒ Learner
- ☐ Producer
- ☒ Citizen
- ☒ Consumer
- ☐ Family Member

SKILLS

Observing, counting, estimating, conserving energy

PURPOSE

To observe car sizes and numbers of people in cars and begin to understand the importance of carpooling and considering other modes of transportation besides cars. To make reference and judgments from data.

PERFORMANCE INDICATORS

Student will be able to discuss how vehicle size and capacity are related to conservation of fuel.

MATERIALS/RESOURCES

Worksheet
Hard surfact to write on
Pencils

REFERENCES

IMPLEMENTATION

Inside discussion:

1. There are all sorts of ways we move around in our world. Can you name some of these ways? (by foot, bicycle, car, train, plane, bus, etc.)

2. "Which way do you think we use the most for going places?" The car - discuss what a vehicle is. Dictionary definition "any device for carrying passengers, goods or equipment, usually moving on wheels."

3. "Today we are going to go out and observe vehicles that pass our school building, from a safe place on our school ground. Let's see what we can discover. We will collect information or data and discuss what we found."

4. Pass out work sheets and explain each column. Practice collecting information. Ask students "What if a milk truck passed the place where you were collecting information - how would you mark your worksheet?"

5. Assign students to stations around the school block. Every student could record or students could work in pairs or teams with one recorder. Set a time limit for data collection.

6. After data collection discuss such questions as:
   a) Do very many cars pass the school? Why or why not? How many did pass in the time we recorded?

Continued

Activity Title: Vehicle Adventure
Subject Area: Social Studies
Grade Level: 3rd Grade

IMPLEMENTATION (Continued):

6. b) Were most of the cars holding more than one person?

c) Were they mostly smaller compact cars? What percentage of the total were each size car?

d) What are the advantages and disadvantages of compact cars? Medium and large cars?

e) What other modes of transportation can we choose from besides cars? What are advantages and disadvantages? Consider the environmental impact of some of the other choices.

f) What other vehicles besides cars passed by the school? If they were service vehicles, what kinds of services do they and their companies provide for people living in the community? Why don't more people car pool or ride buses or bikes?

g) Were all the vehicles traveling at safe speeds? If not, does that speed create safety hazards for pupils? If so, what should be done to reduce or remove the hazards?

h) What can we conclude overall and generally from our data gathering?

VEHICLE CENSUS AND OBSERVATION

ORDER OF VEHICLES (Number them)	WHAT KIND OF VEHICLE? (Check one)					HOW MANY PEOPLE WERE IN THE VEHICLE?	WAS THE VEHICLE CARRYING ANY GOODS? IF YES, WHAT?
	CAR			TRUCK	OTHER		
	SMALL	MEDIUM	LARGE		Name it		

ACTIVITY TITLE

What Happens to the Leaves?

SUBJECT AREA

Science

GRADE LEVEL

3rd Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Observation, Inference Making, Comparing

PURPOSE

To develop an understanding of decomposition of organic materials

PERFORMANCE INDICATORS

Student will be able to describe the decomposition of leaves.

MATERIALS/RESOURCES

Old pile of leaves

Note: This activity would not have to be done in the fall.

IMPLEMENTATION

Go outside and look for leaves in different stages of decomposition.

1. Have the students tell the story of a leaf from when it is green to when it lands on the ground.
2. Then ask "After that, where do leaves go?"
3. Ask "Have you ever seen a place where leaves pile up like this?" What happens to the leaves on the bottom of the pile?" (Get answers, but don't indicate which are right or wrong.)
4. Explain what the students will do. "I know a place where leaves have piled up. We are going to go and look at those leaves. First, we will look to see what those on the top are like. Then we will very carefully push the leaves aside and look at what is happening to the one's underneath." Ask the students to rummage through the pile of leaves. What do the leaves on top look like? In the middle? On the bottom? Do you think the leaves will change more? If so, what might they change into? (humus and soil) What things might have caused the changes in the leaves? (fungus, sowbugs, bettles, moisture, etc.) Why do these things break down the leaves? (to utilize the leaves for food)

REFERENCES

ACTIVITY TITLE

Measurement

SUBJECT AREA

Math

GRADE LEVEL

3rd Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Measurement using precise and imprecise units

PURPOSE

To begin to grasp the actual size of things on the school ground in relationship to themselves.

PERFORMANCE INDICATORS

Student will be able to measure length, width, circumference and heights of school yard objects.

MATERIALS/RESOURCES

Meter sticks
Metric tape
Chalk
Sticks

IMPLEMENTATION

Outside, have students measure various schoolground objects of their choice by using "personal" standards of measurement as well as the metric measurements. Have them keep records. Some examples of "personal" standards of measurement are length of shoe, elbow to fingertip, width of outstretched arms, hand-span, height, one fist high.

Metric measurements would be taken with a meter stick or metric tape. Give students ten minutes to get personal and metric measurements from three objects of their choice. Choices could include: length of various leaves, height of various plants, width of see-saw, width of sidewalk, circumference of large tree.

How many hands high is the chinning bar? How many bricks in one row?

How can you estimate height? By using the "Stick Method." Have child of known height stand at the foot of a tree or other tall object. Then have each of the other children move back about 100 feet and hold a stick vertically at arm's length in front of himself.

Next, instruct each child to use his thumb to mark off on the stick what appears to be the height of the child standing at the foot of the tall object. Finally, by seeing how many times he can measure this distance on the tall object, have each child make an estimate of the designated object's height.

Continued

REFERENCES

Activity Title: Measurement
Subject Area: Math
Grade Level: 3rd Grade

IMPLEMENTATION (Continued):

Another measurement exercise:

Have students research the actual size of objects such as the Mayflower, a dinosaur, a sperm whale, etc. Transfer data to graph paper (proportionately) and finally to the blacktop.

On examples such as the Mayflower, how many people fit inside for the trip to America? Where were different parts of the ship located?

On examples such as the whale, where are different parts of the whale located? (spout, ears, tail, eyes, etc.)

Another measurement idea:

Do some comparing. Is the flagpole taller or shorter than the school building?

Is the tree taller or shorter than the telephone pole?

ACTIVITY TITLE
Cinquain

SUBJECT AREA
Language Arts

GRADE LEVEL
4th Grade

GOALS:
- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Drawing, writing poetry, observing

PURPOSE
To introduce students to a non-traditional poetry form. To produce an attractive example of student's art and language skills and creativity.

PERFORMANCE INDICATORS
Student will be able to write a cinquain poem.

MATERIALS/RESOURCES
8" X 11" piece of paper - one for each participant.

One cardboard backing (hard surface) for each person.

One charcoal or pencil for each person.

Collection of natural "crayons" (dandelion flowers, dandelion greens, green leaves, wood pieces, charcoal, roots, soils, rocks). Any object that will stain or dirty a piece of paper can be used.

REFERENCES
U.S. Forest Service
Creative Communications
task card

IMPLEMENTATION
Seat everyone around a bush, tree or any other naturally aesthetic object in the area.

Hand out paper, backings and pencils.

Explain to the group that they are going to be sketching the object with "natural crayons which you are going to give them.

Hand out the charcoal and wooden pieces to each person - some may have to share.

Once the group has begun to use the blacks and browns, hand out the other tools so they can add color to their creation - they may share tools.

When the group is about finished with their sketch, ask them to find a space for writing on - either at the bottom or along the side.

With their pencils they should follow your directions:

Line 1 - Write one word title for the object.
Line 2 - Write two words describing what it looks like.
Line 3 - Write three words describing what it is doing (action).
Line 4 - Write four words that state how you feel about it.
Line 5 - Write one word summary.

"Congratulations, you have just written a poem."

Have the group share their creative poems out loud with each other if they so wish.

Set up a "plant gallery" displaying all the pictures.

ACTIVITY TITLE
Litter Recycling

SUBJECT AREA
Social Studies

GRADE LEVEL
4th Grade

GOALS:
- ☐ INDIVIDUAL
- ☐ LEARNER
- ☐ PRODUCER
- ☒ CITIZEN
- ☒ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Understanding the principles of landfills and recycling.

PURPOSE
To develop an awareness of the problems associated with the disposal of waste material. This activity will help to provide the students with some understanding of solid waste disposal and the benefits of recycling.

PERFORMANCE INDICATORS
Students will be able to identify garbage which is easily biodegradable and some of the factors that cause degradation.
Students will be able to discuss their community waste disposal system and recycling.

MATERIALS/RESOURCES
Garbage or litter (i.e. cans, plastic bags, assorted food, etc.)

Note: 1st Grade Social Studies lesson plan also deals with litter.

IMPLEMENTATION
1. Visit your school cafeteria. What kinds of garbage do they have? What do they do with it? Where does it finally go?
2. At the outdoor site, fasten samples of school lunch garbage and litter down with pegs. Coordinate with custodian and principal in order to avoid conflicts.
3. Observe it for two weeks, if possible.
4. What disappears? Why? What remains? Do ants, flies and fungi take on new importance? Are polyethylene bags and aluminum cans comparable to any of the rubbish of 100 years ago? How can recycling help? How is your school's garbage handled?
5. You may want the class to write a paper presenting their responses to the discussion questions.

REFERENCES
Outdoor Education
Mini-Sites
Highline Public Schools

ACTIVITY TITLE
Dichotomous Key

SUBJECT AREA
Science

GRADE LEVEL
4th Grade

GOALS:
- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Learn principle of dichotomous key

PURPOSE
Things can be classified by their characteristics.

PERFORMANCE INDICATORS
Students will be able to construct a simple dichotomous key for six different items.

MATERIALS/RESOURCES
Worksheet

IMPLEMENTATION
Duplicate the following page so that each student has a copy.

Explain that shapes have obvious differences, i.e. some are made with straight lines, some with curved lines.

Using these differences, shapes can be put into separate categories.

A key begins with one large category (all shapes in this case) and ends up with many separate categories into which only one particular shape will fit.

The individual categories have names, i.e., triangle, circle, etc.

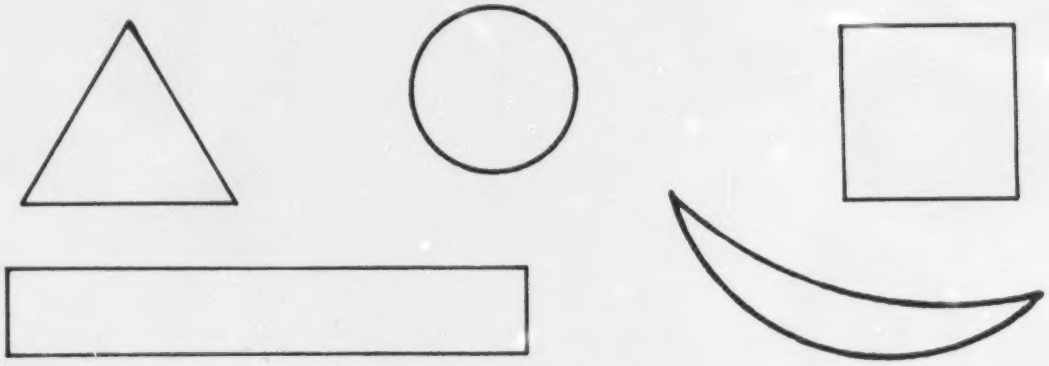
If we can categorize shapes, we can also categorize other objects. This type key is used to identify plants. Can you make a plant dichotomous key using the leaf shapes on the worksheet?

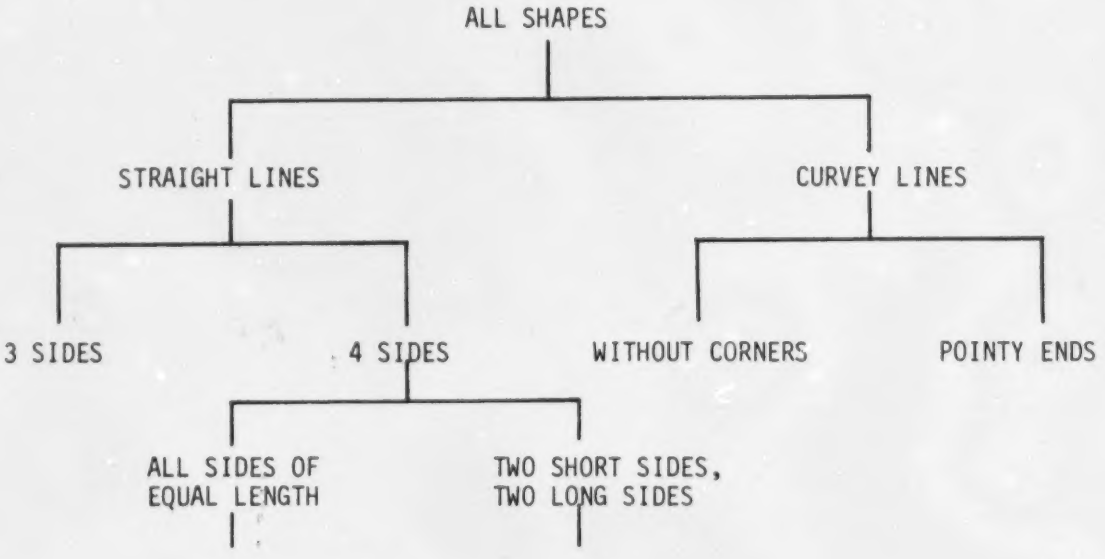
Collect six different leaves outside. Make a dichotomous key using them. (You do not need to know their names.)

REFERENCES

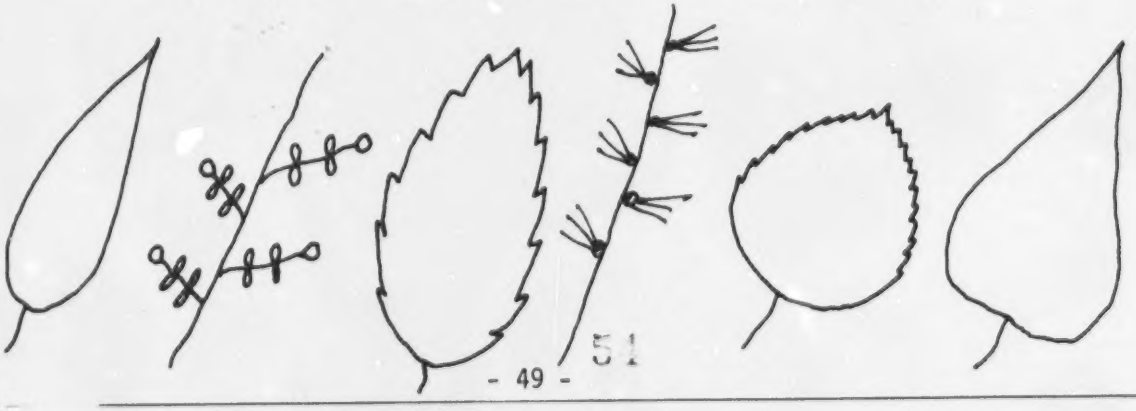
SAMPLE WORKSHEET - LANE E.S.D.

All of these shapes fit into the DICHOTOMOUS KEY below. When you discover where a shape fits, draw it over the appropriate question mark(?).





Can you develop a DICHOTOMOUS KEY for the following shapes?



ACTIVITY TITLE

Fraction Fun Hunt

SUBJECT AREA

Math

GRADE LEVEL

4th Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Fractions

PURPOSE

To understand practical applications of fractions.

PERFORMANCE INDICATORS

Students will be able to identify when objects have been divided into the following fractions: 1/2, 1/3, 1/4, 1/5, 1/6, 2/4, 3/4, 2/3, 2/5, 3/5, 4/5, 2/6, 3/6, 4/6, 5/6.

MATERIALS/RESOURCES

Leaves twigs, litter
Chalk
Playground lines

IMPLEMENTATION

If the students have not been introduced to these fractions, use chalk to divide up shapes on the blacktop - like dividing a circle into six "pie piece" shapes.

Use lines on the playground, like the 4-square court to talk about 1/4, 2/4, 3/4 to 1.

Have students find fractions in the monkey bars. (Older style monkey bars are often designed as 4 X 4 X 4 or 3 X 3 X 3 cubes.)

Have students find fractions in nature.

Find equivalent fractions like 1/2 = 2/4.

Add and subtract fractions of yellow-line designs.

Can you find any potential fractions on the walls of the school building? On the cars parked near the school?

Go on a "fraction frolic" and help students find fractions everywhere.

REFERENCES

ACTIVITY TITLE

Echoisms

SUBJECT AREA

Language Arts

GRADE LEVEL

5th Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Word definition and use

PURPOSE

To define and demonstrate echoisms.

PERFORMANCE INDICATORS

Students will be able to define an echoism and use several to describe everyday occurrences.

MATERIALS/RESOURCES

None needed

IMPLEMENTATION

Echoisms are words which imitate sounds. Some examples are:

Bang	Buzz
Bing	Scratch
Blare	Snap
Crackle	Wheeze
Chuckle	Whiz
Clang	Hum
Boom	Splash
Roar	Whisper
Sizzle	Click
Whang	Clack

Go outside and listen. Do these echoisms really sound like things you hear? Make up echoisms for sounds if they don't fit.

Using these echoisms or others you may have thought of, write a description of things that happen on your schoolyard.

REFERENCES

Audubon Society Language Arts and the Environment

ACTIVITY TITLE
Use of Natural Resources

SUBJECT AREA
Social Studies

GRADE LEVEL
5th Grade

GOALS:
- ☐ INDIVIDUAL
- ☐ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Career awareness, understanding resource/job inter-relationship

PURPOSE
To study the materials and manufacture of different school ground structures.

PERFORMANCE INDICATORS
Students will be able to identify raw materials used in the manufacture of different structures on the school ground and explain where they come from and how the structure was constructed.

MATERIALS/RESOURCES
Walls buildings, play-ground equipment, etc.

(Consult school ground inventory)

IMPLEMENTATION
1. Inventory or choose two school ground structures (manmade).
2. Discuss:
   a) raw materials used
   b) manufacturing process
   c) origin of materials used
   d) transporation of product to school ground
   e) construction of structures
   f) jobs and skills involved, from extraction of raw materials, manufacture, to install-ation on school ground

REFERENCES

ACTIVITY TITLE

Air Mail Balloons

SUBJECT AREA

Science

GRADE LEVEL

5th Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☒ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Understanding the wind as movement of masses of air.

PURPOSE

To learn wind is the movement or flow of air. To understand the concept of "lighter than air."

PERFORMANCE INDICATORS

Students will be able to relate wind flow to water flow; students will be able to explain why helium balloons go up and why they eventually come down.

MATERIALS/RESOURCES

Helium, balloons, postcards, ping-pong balls

(Helium is often available through welding supply stores. Look under "Gas-Industrial" in the Yellow Pages.)

REFERENCES

IMPLEMENTATION

1. Using ping-pong balls floating in puddles and gutters to demonstrate different rates of flow, turbulence, etc., emphasize that the water moves and the ping-pong ball just floats on top of the water it started with.

2. Why do the ping-pong balls float instead of sink? (They are lighter than the same volume of water.)

3. Can anything float on air? (Helium, hydrogen or hot air filled balloons or dirigibles can because they weigh less than the same volume of air.) Do balloons move like the ping-pong balls? What causes them to move? (Engines or wind-air masses moving from areas of high pressure to areas of low pressure)

4. Address postcards to your school. Ask the finder of the card to return it to you and tell you when and where he found it. Put each post card in a sandwich bag and then into a balloon. Fill the balloon with helium and release it outside. Record wind direction and if possible, wind speed. If possible, release over several days with different wind conditions. Make sure to mark when each card is released. Release several balloons inside your classroom to see how long they stay in the air. Tie several balloons outside and see how long they stay in the air.

5. Record the locations where balloons were found on a map. Calculate as closely as you can how fast the balloon traveled. Did it go the same direction and speed as the wind was when you released it? Why did the balloons come down at all? (Helium was lost through the balloons walls.)

ACTIVITY TITLE
Pacing Game

SUBJECT AREA
Math

GRADE LEVEL
5th Grade

GOALS:
- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Division with fractions or decimals, addition of fractions and decimals, solving story problems

PURPOSE
To teach a practical application of math.

PERFORMANCE INDICATORS
Students will be able to use paces to estimate distances in feet or meters.

MATERIALS/RESOURCES
Measuring Tape
Graph Paper
Rulers
Popsicle Sticks
Prize (optional)

IMPLEMENTATION
Set up a starting point and ending point 100 feet (or 50 meters) apart. Have each student walk the course and count his paces. A pace is two steps. Take normal steps, not extremely long or short. Have each student find how many feet are in his average pace.

Set up a square 100 feet on each side. Use string, chalk line, etc. to mark the boundaries. Choose a secret point in the square to which you can return precisely. Do not mark the point. Measure the co-ordinates of the secret point. Plot the square and the secret point to scale on graph paper.

Using only right-angle turns (unless your students can use a compass) plot a variety of routes to the secret point from each of the corners of the square. Plot enough so that each student has a separate unique route to pace. Reduce each route to instructions: "Go south 55 feet, go west 15 feet, go north 30 feet, go east 5 feet to the secret point." Have students use popsickle sticks marked with their names to mark their secret point.

Give the instructions to the students and tell them to use pacing to find the secret point. Offer a prize for the closest student if you wish. This can be done repeatedly to practice division in a competitive environment.

Hint: Do the entire procedure on graph paper first to make sure that it works.

REFERENCES

ACTIVITY TITLE
Verse - Three Ways

SUBJECT AREA
Language Arts

GRADE LEVEL
6th Grade

GOALS:
- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Poetry

PURPOSE
To learn several elements or forms of poetry.

PERFORMANCE INDICATORS
Students will be able to give an example of alliteration, couplet and haiku.

MATERIALS/RESOURCES
Paper
Pencils

IMPLEMENTATION
Three kinds of verses to do out on the school ground:

1. Alliteration
   In an alliteration an initial sound, usually a consonant, is repeated in a series of words.

   She sells sea shells down by the seashore.

2. Couplet
   A couplet is two lines of verse. The last word in both lines rhyme.

   The tree growing so tall
   Makes me feel quite small.

3. Haiku (Hi-ku)
   Haiku is a Japanese poetry form often used to describe things in nature. Haiku is three lines long. It does not rhyme. Here is what you need to remember: the first line has five syllables, the second line has seven syllables, and the third line has five syllables.

   "silence of a pond
   a frog jumps into water
   and deep resonance"

REFERENCES

ACTIVITY TITLE

Mapping Your School Neighborhood

SUBJECT AREA

Social Studies

GRADE LEVEL

6th Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☒ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Mapping, Using Maps

PURPOSE

To acquaint students with maps of different scales, with legends and with using maps to measure areas and distances.

PERFORMANCE INDICATORS

Students will be able to make simple maps, use simple maps, and make calculations involving area and distance.

MATERIALS/RESOURCES

Paper
Ruler
Pencil
Eraser
Clipboard or equivalent

Land measuring tools, tapes, compasses will increase sophistication of the maps but are not necessary.

REFERENCES

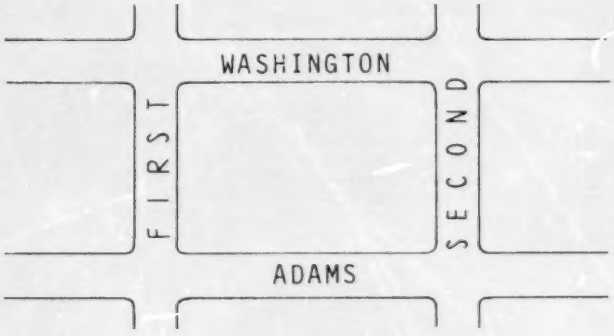
A Place to Live,
Audubon Society

IMPLEMENTATION

Do individually or in small groups:

You are going to draw a map of your school neighborhood. You will have to follow orders carefully. Be sure not to leave anything out.

1. Look at this map showing a school and the streets around it. It could be a map of anyone's neighborhood.



2. Next, go outside and look around your school:
   a) Notice the names of the streets.
   b) Look at the other buildings.

Activity Title: Mapping Your School Neighborhood
Subject Area: Social Studies
Grade Level: 6th Grade

IMPLEMENTATION (Continued):

3. How many buildings do you see?

Write here	Building	Symbol
_____	School	
_____	Apartment House.	
_____	Office Building.	
_____	Store.	
_____	Garage	
_____	House.	
_____	Playground Building.	
_____	Factory.	
_____	Service Station.	
_____		
_____		

Add anything that is not on the list.

4. Draw your own map of the school neighborhood. Write in the street names where they belong. Put in the symbol for your school. Put in the other symbols.

5. Are there any points of historical significance? Where did the old school building or the original portion of the present one stand?

6. (The final four points can be done independently of the first five.) Map your school ground paved areas using measuring tapes or pacing. Graph paper is useful.

7. Use the maps to calculate the area of the school site covered by impervious material. Did everyone get the same area? What are the reasons for the differences in the maps?

8. Secure data from the weather bureau regarding annual rainfall for your area. Calculate in various units (gallons, liters) the volume of water that runs off the impervious area each year. Where does it go?

9. Is it important that rainfall soak into the ground? Why or why not? Why are cities likely to have flood damage after a very heavy rain? What purpose is served by storm sewers? Does your city have them?

ACTIVITY TITLE

Temperature of School Wall

SUBJECT AREA

Science

GRADE LEVEL

6th Grade

GOALS:

- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS

Graphing, Analyzing Data

PURPOSE

To measure, graph, and analyze differences in temperature

PERFORMANCE INDICATORS

Students will be able to record temperatures, and to graph four sets of data in an understandable way.

MATERIALS/RESOURCES

Four mailing tubes or paper towel cores

Aluminum foil

IMPLEMENTATION

In the following activities you will discover some temperature differences that are found around your school.

1. Wrap the outside of the four cardboard tubes with aluminum foil. Leave the ends open. Place a thermometer in each tube. Tape each tube with thermometer to an outside wall with a different exposure to the sun. Each tube should be at the same height, at least 40" off the ground.

2. Record the temperatures registered in each tube hourly throughout the school day. Perhaps a volunteer can record the temperature before and after school. Thermometers may need to be removed daily to prevent theft. If so, allow five minutes to pass after replacing the thermometer before recording the temperature.

3. Prepare a display for a school bulletin board that summarizes and explains the differences in temperature.

REFERENCES

Mini-Climates of the
Examining Your
Environment Series

ACTIVITY TITLE
Measuring by a Shadow

SUBJECT AREA
Math

GRADE LEVEL
6th Grade

GOALS:
- ☐ INDIVIDUAL
- ☒ LEARNER
- ☐ PRODUCER
- ☐ CITIZEN
- ☐ CONSUMER
- ☐ FAMILY MEMBER

SKILLS
Proportions and Fractions

PURPOSE
To teach a practical application of fractions and proportions

PERFORMANCE INDICATORS
Students will be able to measure the height of an object by comparing its shadow to that of an object of known height.

MATERIALS/RESOURCES
Trees and Sun
Stake - approximately four feet long
Measuring Tape

IMPLEMENTATION
On a sunny day, select a tree that casts a distinct shadow. Drive a stick into the ground so that it is vertical, and casts a shadow. Measure the length of the tree's shadow (A), the length of the stick's shadow (B), and the height of the stick (C). The height of the tree (X) can be found by proportion.

$$\frac{X}{A} = \frac{C}{B} \quad \text{or} \quad X = \frac{A \times C}{B}$$

Variations: Measure height of different objects. Measure the same object at different times of the day. Use much longer stakes or much shorter. Double check the method by measuring the height of an object, the height of which is known already. The answers will not usually be exactly the same. Why not? Does this tell you anything about data from measurements?

REFERENCES
Outdoor Education in Oregon Schools

EVALUATIONS PLEASE

The writing team intends to revise this curriculum based on comments that we receive from users like yourself. Won't you please help us by evaluating it and letting us know what you think is good and what needs improvement?

Perhaps you could have your class evaluate it too. That would be a good language arts assignment.

If you or your class are so kind as to provide an evaluation, we will send you a complimentary copy of our second edition. Send evaluations to:

Dan Green
256 Warner-Milne Road
Oregon City, Oregon 97045

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